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| 10/559,507 | 12/05/2005 | Manfred Hubinger | HUBINGER MET AL 2 PCT | 3822 |
| 25889 7590 05/26/2009 COLLARD & ROE, P.C. 1077 NORTHERN BOULEVARD ROSLYN, NY 11576 | | | EXAMINER RALJS, STEPHEN J | |
| | | | ART UNIT 3742 | PAPER NUMBER |
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/559,507

Applicant(s)

HUBINGER ET AL.

Examiner

STEPHEN J. RALIS

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 February 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 4-14 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 4-14 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 05 December 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-8508)
- 4) ☐ Interview Summary (PTO-413)
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____
- Paper No(s)/Mail Date _____

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1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
2. Applicant is respectfully requested to provide a location within the disclosure to support any further amendments to the claims due to when filing an amendment an applicant should show support in the original disclosure for new or amended claims. See MPEP § 714.02 and § 2163.06 ("Applicant should specifically point out the support for any amendments made to the disclosure.").

Continued Examination Under 37 CFR 1.114

3. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 26 February 2009 has been entered.

Response to Amendment/Arguments

4. Applicant's arguments with respect to claims 4-14 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 112

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

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6. Claims 4-14 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
7. Claims 13 and 14 recite the limitation "said sensor being arranged in front of the drive unit, viewed in the conveying direction of the welding wire". It is unclear and indefinite to what exactly "viewed in the conveying direction of the welding wire" is. Further structure is required to efficiently recite the structure.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:
 1. Determining the scope and contents of the prior art.
 2. Ascertaining the differences between the prior art and the claims at issue.
 3. Resolving the level of ordinary skill in the pertinent art.
 4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

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10. Claims 10-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Noble (U.S. Patent No. 1,508,713) in view of Reinking (German Publication No. DE 3120721 A).

Noble discloses a welding torch (arc welding apparatus) having a central axis (see line correlating to the axis of the electrode 6; see Figures 1, 3) comprising: a torch body (electrode delivery device 4); a drive unit (rolls 17; page 2, lines 6-87; see Figures 1, 3) for conveying a welding wire (electrode 6) at different wire-conveying speeds or for a forward/rearward wire conveyance; a hose pack (flexible guide tube 7) connected at a connection region to the torch body at an angle of up to 90 degrees relative to the central axis (backend of ball socket type joint 22; page 2, lines 96-105); and a wire buffer storage (front end of ball socket type joint 22; page 2, lines 96-105; see Figures 1, 3) arranged immediately after the connection region within the torch body, the wire buffer storage (front end of ball socket type joint 22; page 2, lines 96-105; see Figures 1, 3) containing a portion of the welding wire (electrode 6), the portion following a curved course between the connection region and the drive unit (see Figure 3), the portion of the welding wire contained in the wire buffer storage being adjustable by a change of the curved course.

With respect to the limitation of a portion of the welding wire contained in the wire buffer storage being adjustable by a change of the curved course, Noble discloses the ball socket joint (22) being rotatable (page 2, lines 96-105; see Figures 1, 3). Since the ball socket joint (22) is rotatable and the welding wire (electrode 6) is within the wire buffer storage (front end of ball socket type joint

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22; page 2, lines 96-105; see Figures 1, 3), the portion of the welding wire (electrode 6) is implicitly adjustable by a change of the curved course by the rotation of the ball socket joint (22). Therefore, Noble fully meets "the portion of the welding wire contained in said wire buffer storage being adjustable by a change of said curved course" given its broadest reasonable interpretation.

With respect to the limitations of claim 10, Noble discloses the welding wire (electrode 6) being unguided and the interior of the ball socket joint (22) as limit elements arranged in the torch body (body (electrode delivery device 4) to delimit the curved course of the unguided welding wire. Therefore, Noble fully meets "the welding wire is unguided and wherein limit elements are arranged in the torch body to delimit the curved course of the unguided welding wire" given its broadest reasonable interpretation.

With respect to the limitations of claim 11, Noble discloses the connection of the hose pack (flexible guide tube 7) to the torch body (electrode delivery device 4) by the rear end of the ball socket joint (22).

With respect to the limitations of claim 12, Noble discloses the connection of the hose pack (flexible guide tube 7) to the torch body (electrode delivery device 4) by the rear end of the ball socket joint (22). Noble further discloses the ball socket joint (22) being rotatable (page 2, lines 96-105; see Figures 1, 3). Since the ball socket joint (22) is rotatable and the welding wire (electrode 6) is within the wire buffer storage (front end of ball socket type joint 22; page 2, lines 96-105; see Figures 1, 3), the amount of welding wire (electrode 6) is implicitly adjustable by a change of the curved course by the rotation of the ball socket

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joint (22). Therefore, Noble fully meets “the hose pack is arranged to be adjustable relative to the torch body so as to enable a change of the amount of welding wire contained in the wire buffer storage by such an adjustment” given its broadest reasonable interpretation.

Noble discloses all of the limitations of the claimed invention, as previously set forth, except for a sensor to detect the welding wire stored in the wire buffer storage; and the sensor being arranged in front of the drive unit, viewed in the conveying direction of the welding wire.

However, sensors in the wire storage loop in front of a drive unit are known in the art. Reinking, for example, teaches a sensor element (11, 12) being arranged in front of a drive unit (pressure rollers 3, 5 in combination with draw roller 2, 4) providing a means to reduce wire delivery from the system until the continuous wire intake of the welding machine uses up the surplus wire supply (English translation; Abstract), thereby increasing the operational efficiency of the welding apparatus. It would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify Noble with the sensing of the welding wire in the wire storage portion of Reinking in order to provide a means to reduce wire delivery from the system until the continuous wire intake of the welding machine uses up the surplus wire supply (English translation; Abstract), thereby increasing the operational efficiency of the welding apparatus.

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11. Claims 4, 5 and 7-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lorentzen (U.S. Patent No. 5,521,355) in view of Reinking (German Publication No. DE 3120721 A).

Lorentzen discloses a welding torch (Title) having a central axis (see Figures 1, 3) comprising: a torch body (torch housing 40); a drive unit (pulling charging means 28) for conveying a welding wire (wire electrode 20) at different wire-conveying speeds or for a forward/rearward wire conveyance; a hose pack (torch cable 42) connected at a connection region (rear end of torch housing 40) to the torch body (torch housing 40) at an angle of up to 90 degrees relative to the central axis (see Figures 1, 3); and a wire buffer storage (round region of torch housing 40 before pulling charging means 28; see Figure 3) arranged immediately after the connection region (rear end of torch housing 40) within the torch body (torch housing 40), the wire buffer storage (round region of torch housing 40 before pulling charging means 28; see Figure 3) containing a portion of the welding wire (wire electrode 20) and being formed from a member (conduit 104) selected from the group consisting of a wire core and a guide hose (conduit 104) including a flexible liner with a bore; column 7, lines 2-6; see Figure 3), the member (conduit 104) following a curved course (see Figure 3) between the connection region (rear end of torch housing 40) within the torch body (torch housing 40) and the drive unit (pulling charging means 28), the portion of the welding wire contained in the wire buffer storage being adjustable by a change of the curved course.

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With respect to the limitation of the amount of welding wire contained in the wire buffer storage being adjustable by a change of the curved course, Lorentzen discloses the welding wire (wire electrode 20) inside of conduit (104) being provided to the torch housing (40) via the connection region in the rear end of the torch housing (40). Since the pulling acceleration may change as well as the angle of the torch cable (42) with respect to the torch housing (40) when the welding torch assembly is in use, the amount of welding wire (wire electrode 20) is implicitly adjustable by a change of the curved course caused by the movement of the torch assembly during use. Therefore, Lorentzen fully meets "the amount of welding wire contained in said wire buffer storage being adjustable by a change of said curved course" given its broadest reasonable interpretation.

With respect to the limitations of claim 4, Lorentzen discloses the member (conduit 104) comprising a wire core (liner with bore) arranged in an end region within the torch body so as to be freely movable in the longitudinal direction (see Figure 3).

With respect to the limitations of claim 7, Lorentzen disclose the conduit (104) with the liner being fixed to the rear end of the torch housing (40) and near the drive unit (pulling charging means 28). Therefore, Lorentzen fully meets "the member comprises a wire core fixed near the drive unit" given its broadest reasonable interpretation.

With respect to the limitations of claim 10, Lorentzen discloses the welding wire (wire electrode 20) being unguided after the drive unit (pulling charging

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means 28) and further being delimited by limit elements (delivery tube 122).

Therefore, Lorentzen fully meets "the welding wire is unguided and wherein limit elements are arranged in the torch body to delimit the curved course of the unguided welding wire" given its broadest reasonable interpretation.

With respect to the limitations of claim 11, Lorentzen discloses the connection of the hose pack (torch cable 42) to the torch body (torch housing 40) in the rear end of the torch body (torch housing 40) (see Figure 3). Clearly, there is a coupling means to allow the torch cable (42) into torch housing (40). Therefore, Lorentzen fully meets "the connection of the hose pack to the torch body is realized by a coupling device" given its broadest reasonable interpretation.

With respect to the limitations of claim 12, Lorentzen discloses the connection of the hose pack (torch cable 42) to the torch body (torch housing 40) in the rear end of the torch body (torch housing 40) (see Figure 3). Again clearly, there is a coupling means to allow the torch cable (42) into torch housing (40). Furthermore through the use of the welding torch assembly, the torch cable (42) will move, thereby the welding wire (wire electrode 20) is implicitly adjustable due to the movement of the torch cable (42). Therefore, Lorentzen fully meets "the hose pack is arranged to be adjustable relative to the torch body so as to enable a change of the amount of welding wire contained in the wire buffer storage by such an adjustment" given its broadest reasonable interpretation.

Lorentzen discloses all of the limitations of the claimed invention, as previously set forth, except for a sensor to capture the welding wire stored in the

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wire buffer storage; the sensor being arranged in front of the drive unit, viewed in the conveying direction of the welding wire; and the wire core terminating immediately after the connection region. However, sensors in the wire storage loop in front of a drive unit are known in the art. Reinking, for example, teaches a sensor element (11, 12) being arranged in front of a drive unit (pressure rollers 3, 5 in combination with draw roller 2, 4) providing a means to reduce wire delivery from the system until the continuous wire intake of the welding machine uses up the surplus wire supply (English translation; Abstract), thereby increasing the operational efficiency of the welding apparatus.

It would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify Noble with the sensing of the welding wire in the wire storage portion of Reinking in order to provide a means to reduce wire delivery from the system until the continuous wire intake of the welding machine uses up the surplus wire supply (English translation; Abstract), thereby increasing the operational efficiency of the welding apparatus. In addition, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the location of where the wire core terminates to immediately after the connection region, since it has been held that rearranging parts of an invention involves only routine skill in the art. Furthermore, to provide the wire core terminating immediately after the connection region would have been a mere engineering expediency as it would be obvious to try different location of the termination of the wire core with respect to the connection region, providing predictable solutions, with a reasonable expectation of success.

12. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lorentzen (U.S. Patent No. 5,521,355) in view of Reinking (German Publication No. DE 3120721 A) as applied to claims 4, 5 and 7-14 above, and further in view of Ide et al. (Japanese Publication No. JP 57134276 A).

Lorentzen in view of Reinking discloses all of the claimed limitations, as previously set forth, except for the sensor comprising at least one coil surrounding an indicator and having an inductance that is changeable by the position of the indicator.

However, a sensor comprising at least one coil surrounding and indicator and having an inductance that is changeable by the position of the indicator is known in the art. Ide et al., for example, teach a detector for projecting the length of a core wire in which the sensor (7a, 7b) comprise at least one coil (solenoid coils 7a, 7b) surrounding an indicator (core wire) and having an inductance that is changeable by the position of the indicator (wire core). Ide et al. further teach that such a configuration provides a means to detect the length of the core wire with high accuracy, thereby increasing the operational efficiency of the welding apparatus (English translation; Abstract). It would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the sensor arrangement of Lorentzen in view of Reinking with the indicator/coil arrangement of Ide et al. in order to provide a means to detect the length of the core wire with high accuracy, thereby increasing the operational efficiency of the welding apparatus.

Remarks

13. With respect to applicant's reply/argument that there is no wire buffer storage in Noble, the examiner respectfully disagrees. Noble explicitly discloses a wire buffer storage (front end of ball socket type joint 22; page 2, lines 96-105; see Figures 1, 3) arranged immediately after the connection region within the torch body, the wire buffer storage (front end of ball socket type joint 22; page 2, lines 96-105; see Figures 1, 3) containing a portion of the welding wire (electrode 6). Noble further discloses the ball socket joint (22) being rotatable (page 2, lines 96-105; see Figures 1, 3). Since the ball socket joint (22) is rotatable and the welding wire (electrode 6) is within the wire buffer storage (front end of ball socket type joint 22; page 2, lines 96-105; see Figures 1, 3), the portion of the welding wire (electrode 6) is implicitly adjustable by a change of the curved course by the rotation of the ball socket joint (22). Therefore, Noble fully meets "the portion of the welding wire contained in said wire buffer storage being adjustable by a change of said curved course" given its broadest reasonable interpretation.

14. With respect to applicant's reply/argument that there is no wire buffer storage in Lorentzen, the examiner respectfully disagrees. Lorentzen explicitly discloses a wire buffer storage (round region of torch housing 40 before pulling charging means 28; see Figure 3) containing a portion of the welding wire (wire electrode 20) and being formed from a member (conduit 104) selected from the group consisting of a wire core and a guide hose (conduit 104 including a flexible

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liner with a bore; column 7, lines 2-6; see Figure 3). Lorentzen further the welding wire (wire electrode 20) inside of conduit (104) being provided to the torch housing (40) via the connection region in the rear end of the torch housing (40). Since the pulling acceleration may change as well as the angle of the torch cable (42) with respect to the torch housing (40) when the welding torch assembly is in use, the portion of the welding wire (wire electrode 20) is implicitly adjustable by a change of the curved course caused by the movement of the torch assembly during use. Therefore, Lorentzen fully meets "the portion of the welding wire contained in said wire buffer storage being adjustable by a change of said curved course" given its broadest reasonable interpretation.

Prior Art

15. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

U.S. Patent No. 2004/0129288 to Samokovlinski et al. is a teaching of a modular welding apparatus with a sensor disclosed after the wire feed pulling means that provides a closed loop feedback.

U.S. Patent No. 4,187,411 to Bryce is a teaching of utilizing a coil arrangement to detect a welding wire.

U.S. Patent No. 6,082,657 to Chen et al. is a teaching of a wire feeding device detecting a wire supply within a buffer region.

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International Publication No. WO 02/36296 A1 and U.S. Patent No. 6,029,677 to Hackl et al. is a teaching of detecting element for a welding device.

U.S. Publication No. 2004/0016736 to Huismann et al. is a teaching of detection of a wire supply within a buffer storage region inside a welding torch.

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Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to STEPHEN J. RALIS whose telephone number is (571)272-6227. The examiner can normally be reached on Monday - Friday, 8:00-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tu Hoang can be reached on 571-272-4780. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Stephen J Ralis/
Examiner, Art Unit 3742

Stephen J Ralis
Examiner
Art Unit 3742

SJR
May 12, 2009